WE CLAIM:

1. A test apparatus for testing substrates at low temperatures, comprising:

a vacuum chamber;

an uncooled chuck drive arranged within said vacuum chamber;

a chuck carried by said chuck drive and thermally decoupled therefrom, said chuck having a receiving surface for receiving a test substrate;

a substrate carrier for receiving and holding a substrate to be tested in releasable thermal contact with said receiving surface; and

a directly cooled thermal radiation shield arranged to shield said test substrate from thermal radiation.

2. The test apparatus as claimed in claim 1 wherein said vacuum chamber is provided with an inspection opening on top wall lying opposite a top side of said chuck.

3. The test apparatus as claimed in claim 1 wherein said chuck is connected to said chuck drive by means of an intermediate part made from a material with a lower thermal conductivity than metal.

4. The test apparatus as claimed in one of claims 1 wherein said thermal radiation shield has a through-opening in the center.

5. The test apparatus as claimed in claim 4, wherein the through-opening is provided with a transparent closure which filters light of selected wavelengths.

6. The test apparatus as claimed in claim 1 wherein there are provided probe holders which are thermally conductively connected to the chuck.

7. The test apparatus as claimed in claim 1 wherein there are provided probe holders which are thermally conductively connected to the thermal radiation shield.

8. The test apparatus as claimed in claims 1 wherein said substrate carrier is carried by a mounting arrangement which includes a vertically movable member which is thermally connected to the cooled chuck, and a holding pin, which is mounted to the chuck drive and consists of a material with a lower thermal conductivity than metal.

9. The test apparatus as claimed in claim 1 wherein the chuck comprises a chuck body with a chuck surface and a chuck plate which rests on the chuck surface over its entire area and can be detached from the chuck body.

10. The test apparatus as claimed in claim 1 wherein cooled parts of the chuck and of the thermal radiation shield consist of material with a good thermal conductivity, and the cooled parts of the chuck have highly reflective surfaces.

11. The test apparatus as claimed in claim 1 wherein the chuck has a chuck heater,

12. The test apparatus as claimed in claim 1 wherein the thermal radiation shield has a shield heater.